Thesis

***Notre Dame University - Louaize* (NDU)**

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Assessment of breastfeeding support, knowledge, attitude and practices in North Lebanon daycare centers- A cross-sectional study.

A Thesis

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by

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Contents

List of tables:

List of figures:

Abstract

Background: Exclusive breastfeeding rates in Lebanon during the first six months of life remain suboptimal. With more women in the workforce and inadequate paid maternity leave, families in Lebanon increasingly rely on child care in nurseries or daycare centers. Internationally, the extent to which daycare centers support and promote breastfeeding is one influencer of maternal decisions to (dis)continue breastfeeding. In Lebanon, little is known about which breastfeeding-related policies, if any, are implemented in daycare centers, as well as the caregivers' level of knowledge and attitudes towards breastfeeding. This study aimed to address these gaps with particular focus on daycare centers in under-served and under-studied towns in North Lebanon.

Methods: A cross sectional study using a mixed methods approach was conducted targeting licensed daycare centers in Akkar, Tripoli and Zgharta (*n*=30). Voice-recorded interviews with a convenience sample of daycare center directors (*n*=15) were conducted for an in-depth investigation of supports and constraints of breastfeeding support. A questionnaire was administered to caregivers and directors to explore knowledge, practices, and attitudes related to breastfeeding.

Results: None of the daycare centers has written breastfeeding promotion and support policies. None receive frequent breastfeeding support training. Qualitatively, while directors reported being themselves supportive of breastfeeding, they highlighted a wide range of educational, sociocultural and economical barriers, especially during the COVID pandemic, that constraint women to continue breastfeeding. The decision to stop breastfeeding is reportedly taken before enrolling the infant in daycare. Quantitatively, caregivers' breastfeeding knowledge was poor to fair, with scores ranging between 41-68 out of 100. The majority (63%) had negative attitudes towards breastfeeding.

Conclusion: Caregivers and directors at daycare centers in North Lebanon could benefit from culturally sensitive training related to breastfeeding promotion and support. Providing breastfeeding support at daycare centers might be a necessary but insufficient strategy to increase breastfeeding continuation rates in Lebanon, as efforts also need to address larger societal and economic barriers.

Keywords: Daycare, breastfeeding, practices, knowledge, support, Lebanon

Background:

Introduction to Breastfeeding: Maternal and Infant health

"Breastmilk works like a baby's first vaccine, protecting infants from potentially deadly diseases and giving them all the nourishment, they need to survive and thrive." (WHO, 2017). Breastfeeding is highly recommended as a public health strategy to improve maternal and infant health, morbidity and mortality rates around the globe, whereby scaling up breastfeeding rates to universal levels is estimated to prevent the death of around 1 million mothers and children under the age of 5 every year. Breastmilk is the universal ideal standard for infant feeding and optimal nutrition due to its short- and long-term positive effects (Cohen et al., 2018). Over the years, multiple studies established breastfeeding benefits showing that it provides health advantages for both the mother and infant in the short and long term (Table 1). Breastmilk has many benefits mainly for premature and low birth weight (James &Lessen; ADA,2009). Human milk meets infant nutrition needs in easily digestible and bioavailable form, decreases incidence and severity of infectious diseases and acute illnesses such as, acute otitis media, bacterial meningitis, necrotizing enterocolitis, and urinary tract infection. Moreover, it results in a reduction of chronic illnesses such as reduced risk of celiac disease, inflammatory bowel disease, leukemia, type 1 and 2 diabetes, overweight and obesity, as well as reduces risk of allergies and asthmatic diseases (Ip et al, 2007). Furthermore, breastfeeding benefits related to the mother on the long term include decreased risk for developing type 2 diabetes among women who did not develop gestational diabetes, rheumatoid arthritis and cardiovascular disease (James &Lessen; ADA,2009). In addition, breastfeeding is protective against breast and ovarian cancer. For every year of breastfeeding, risk of developing breast cancer is reduced by 6%. Breastfeeding prevents around 20 000 deaths from breast cancer and 20 000

deaths from ovarian cancer each year (WHO,2016). In the short term, benefits include weight changes, lactational amenorrhea, birth spacing, and rapid uterine involution (Chowdhury et al, 2015).

Table 1. Potential benefits of breastfeeding for infants and mothers.

Benefits for infant	**Benefits for mother**
▪ Optimal nutrient composition ▪ Promote sensory and cognitive development ▪ Reduce risk of mortality due to common infant illnesses such as pneumonia and diarrhea ▪ Helps in quick recovery during illness ▪ Reduced risk of sudden infant death ▪ Reduced risk of developing obesity/overweight ▪ Reduced risk of bacterial meningitis, necrotizing enterocolitis, urinary tract infection ▪ Reduced risk of developing type II Diabetes ▪ Higher intelligence rate, resulting in higher academic performance ▪ Reduces risk of allergies and asthmatic diseases. ▪ Strong bonding with mother ▪ Reduction in the risk of both acute lymphocytic leukemia (ALL) and acute myelogenous leukemia (AML). ▪ Reduced risk of hypercholesterolemia ▪ Stronger immune system	▪ Lactational amenorrhea ▪ Decreased postpartum bleeding and more rapid uterine involution ▪ Improved sleeping at night ▪ Lowers blood pressure in breastfeeding mothers before, during, and after breastfeeding sessions. ▪ decrease in depressive symptoms in the postpartum period ▪ Reduced risk of breast and ovarian cancer ▪ Decreased risk for developing type 2 diabetes ▪ Reduced risk of rheumatoid arthritis ▪ Strong bonding with infant

Source: AAP, *Benefits of Breastfeeding*; WHO, *Breastfeeding in the 21st century*; James and Lessen, ADA, *Position of the American Dietetic Association: Promoting and Supporting Breastfeeding*

Economic and environmental effects:

In addition to breastfeeding benefits for both mother and her child, there are economic and environmental benefits related to breastfeeding. Economic benefits can help parents, insurance companies and government. Studies have shown that families can save around 1200$ to 1500$ a year by exclusive breastfeeding instead of buying formula milk. Furthermore, breastmilk provides many health benefits including enhanced immune system which results in fewer infant illness and hospitalization which in turn decrease health care requirements and costs, less absenteeism to care for sick children (Office of the Surgeon General, 2011). A cost analysis study done in the USA showed that if almost all mothers (90%) exclusively breastfeed until 6 months, the US may save around 13 billion$ per year (Bartick & Rheinhold,2010). Breastfeeding also present global environmental benefits; breastmilk is a renewable food that provide all nourishment needed for the infant for about 6 months (Gartner et al, 2005). Moreover, no packaging is needed as opposed to infant formula, even if some of these packages are recyclable, most end up in landfills (La Leche League, 1995). Breastmilk reduces carbon footprint since it does not need energy and fuel to be manufactured and transported to stores (Office of the Surgeon General,2011).

Breastfeeding Recommendations

World Health Organization (WHO) recommends breastfeeding initiation within first hour of life and exclusive breastfeeding until 6 months with continued breastfeeding until 2 years of age and beyond (WHO, 2017). American association of pediatrics recommends baby to be exclusively breastfed until 6 months of age, with not receiving any other food except for vitamin D supplement or any fluids medically recommended. Breastfeeding should be continued until 1 year of age with introduction of solids foods, then breastfeeding can be continued if desired by both mother and infant (APA,2017).

COVID-19 and breastfeeding:

Since breastfeeding present many health benefits to both mother and her child and protect child throughout infancy, mothers infected with COVID-19 can breastfeed if they wish to do so. However, some precautious actions must be taken by mothers. They should: practice respiratory hygiene and wear a mask, wash hands before and after touching the baby, routinely clean and disinfect any surfaces the mother touches. If mother is severely ill, or experiences other complications that prevent her from caring for her child or practicing direct breastfeeding, she may express milk safely to provide breastmilk to infant (WHO,2020).

Prevalence of breastfeeding in some countries of the world and in Lebanon:

Despite the documented benefits of breastfeeding to both mother and infant, breastfeeding rates remain suboptimal around the world for a variety of complex multi-level barriers, at the individual, community, and society levels. Low-income countries have a high prevalence of breastfeeding in general, but even in these nations, initiation and exclusive breastfeeding rates are often considered unsatisfactory. For instance, only 37% of infants < 6 months of age are exclusively breastfed globally and 37% do not receive breastmilk in low- and middle-income countries, and rates are lower in high income countries at the time of the most recent national survey (Victora et al, 2016). Universally, the most elevated prevalence of breastfeeding at one year of age are in sub-Saharan Africa, South Asia, and parts of Latin America. The prevalence however is lower than 20% in most high-income countries whereby critical differences may be found. For example, prevalence in the UK is less than1% compared to 27% in the USA, 35% in Norway and 15% in Sweden. (Victora et al,2016).

In Middle Eastern countries for which published data is available, rates of exclusive breastfeeding to 6 months were 22% and 29%, in Jordan and Syria (Al Akour et al,2010). In Lebanon, exclusivity

and continuity rates of breastfeeding are low. Breastfeeding is documented in 58.3% of infants less than one month and 10.1% to 4.1% of infants 6 months old. Only, 27,1% of children aged 1 year continue to breastfeed (Nabulsi,2011). National data analyzed by the Central Administration of Statistics in Lebanon (CAS) and UNICEF (2010) reveals the proportion of exclusively breastfed children steadily declines between birth and 6 months postnatal. In a cohort study done in Beirut between March and July 2009, among Lebanese women (*n*=452), during 8-12 weeks postpartum, 67% of mothers were breastfeeding; 27.4% were exclusively breastfeeding and 39.6% were giving both breast milk and infant formula while 33% of mothers were giving exclusively infant formula (Hamadeh et al,2013). Figure 1 shows more detailed information about percentages and type of feeding of children <3 years old in Lebanon.

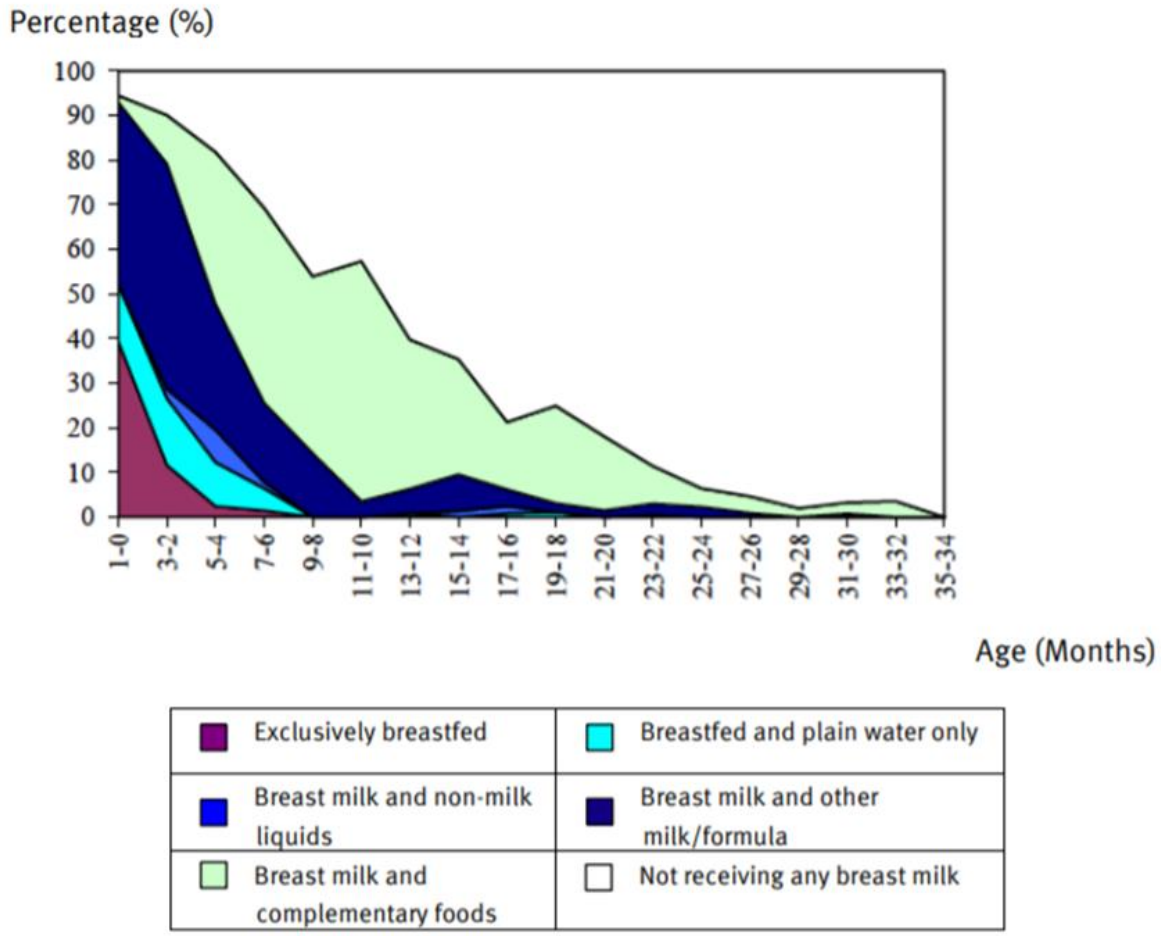

Figure 1. Infant feeding practices by age: Percentage of children under 3 years by feeding type and age, Lebanon 2009 (CAS and UNICEF, 2010). Retrieved from: Akik, Ghattas and El-Jardali,2015.

Barriers to breastfeeding

Even though the documented evidence that breastfeeding reduces different health risks for mothers and children, numerous barriers to breastfeeding remain at different aspects including personal, family or society levels. Studies from other countries reported multiple factors such as lack of knowledge and misconception (insufficiency of breast milk for baby, breastfeeding cause maternal weight gain or breast sagging), social norms (bottle feeding is viewed by many as the normal way to feed infants), poor family and social support (negative attitudes of family and friends can pose a barrier to breastfeeding) also, father play a critical role whether mother breastfeed or not, fathers

can be either a positive influence or a negative influence (Arora et al,2000). Studies have shown that when fathers are informed about breastfeeding benefits and encourage mother, percentage of breastfeeding initiation is higher than father who do not (Wolfberg et al, 2004). More barriers include embarrassment, women may feel themselves excluded from social interactions when they are breastfeeding, both quantitative and qualitative studies showed that the perception of breasts as sexual objects cause women to feel uncomfortable about breastfeeding in public places, this feeling is a reason why mother stop breastfeeding and choose formula feeding instead (McFadden et al, 2006; Khoury et al, 2005; Brownell et al,2002). With more women in the workplace, working full time, rates of breastfeeding decrease as mother return to work because of the lack of flexibility for milk expression, lack of places to pump and store milk and concerns about support from employers and colleagues (Johnston et al, 2007). A qualitative study conducted to identify barriers of breastfeeding among Lebanese women revealed reasons for early weaning, most of the results matched with results of studies from other countries most commonly: fear of weight gain, breast sagging, exhaustion due to sleep deprivation and pain, insufficient milk supply and maternal employment (Nabusli et al., 2011). Different cross-sectional studies conducted in Lebanon reported different predictors of low breastfeeding rates such early return to work (Saadé et al., 2010), as lack of rooming-in of mother and baby, offering formula as first feeds instead of breast milk, caesarean birth, urban residence, early hospital discharge, mother's religion, male pediatrician, implementing and lack of family support. (Batal&Boulghaurjian, 2005; Batal et al. 2006; Al-Sahab et al., 2008).

Interventions to improve breastfeeding practices:

Successful breastfeeding practices do not only depend on maternal attributes but also on support from mother's social circle (Reinsma,2019). The reason most mothers stop breastfeeding before the recommended time is insufficient support at home, in the community and/or at the workplace. Early initiation and exclusive breastfeeding need to be encouraged and supported first by close family members then by baby friendly hospital, health workers, colleagues at workplace and by government (Selim, Unicef,2018). All mothers should be educated about health benefits of breastfeeding for their babies and themselves, they should obtain practical instructions about how to breastfeed from health care workers, classes, books, online resources (Office of the Surgeon General, 2011). Provide community-based programs to promote and support breastfeeding, provide longer paid maternity leave duration. Mothers who return to work need support of their colleagues, supervisors and employers to continue breastfeeding. Currently, many support programs are promoted to create a breastfeeding friendly atmosphere in the workplace. Although, nationally only 10% of mothers working full time who initiated breastfeeding complete to breastfeed until 6 months (CDC).

Actions and regulations to support breastfeeding in Lebanon:

The issue of breastfeeding in Lebanon has risen on the political agenda, however, the country still does not meet international recommendations for early breastfeeding practices. There was no development of any action plan, no implementation of the BFHI or law 47/2008 (Organizing the Marketing of Infant and Young Child Feeding Products and Tools), no ratification of the International Labour Organization maternity protection legislation C.183, numerous violations of the International Code of Marketing of Breast Milk Substitutes such as promoting for formula feeding instead of breastfeeding, hospitals signing contracts with infant formula companies. Also,

inadequate mother support and implementation of information, education and communication strategies (Akik, Ghattas & El-Jardali,2015). However, in August 25th 2015, the Ministry of Public Health, the United Nations Children's Fund (UNICEF), World Vision in Lebanon (World Vision), World Health Organization in Lebanon (WHO), and the International Orthodox Christian Charities (IOCC) with collaboration with LACTICA Association, the Syndicate of Midwives, and the Lebanese Association for Early Childhood Development (LAECD) launched the slogan "No Substitute for a Mother's Milk" within the National Campaign to Support Breastfeeding. The campaign continued till September 25th 2015. This campaign was the first national initiative to share awareness about the importance of exclusive breastfeeding according to WHO recommendations. Ads on TV and radio stations, page on Facebook "National breastfeeding campaign -Lebanon" that provided related articles, posters and leaflets were advertised throughout the campaign duration. Moreover, activities were organized in frequently visited shops by mothers and awareness lectures were conducted in all Lebanese regions. One of the objectives of this campaign was to rigorously control the application of law 47 mainly the 8th article of the law which states that: "It is prohibited for the factory or distributor or any person or his representative to promote any classified product at the point of sale or at health care centers" (MOPH,2015).

In daycare centers:

In Lebanon, no data available for any breastfeeding policy set by government for daycare centers that oblige them to have the daycare equipped with special equipment's for breastfeeding. The national guidelines for early childhood care toolkit published by MOPH do not state any requirements for breastfeeding in the day care. Yet, the Law 47- that aims to encourage and support breastfeeding, article 16 parts A and B states that: The health worker and all health care apparatus and health and medical education and education institutions in the field of health, motherhood and

childhood must not: Accept or receive any gift, contribution, money, or other value whatever it is from the factory or distributor of classified products (formula milk), or anyone acting on his or her behalf, or any other person, whatever it is. Accept, receive or give samples of classified products to any person. However, after checking all documents published by MOPH regarding breastfeeding, two sentences in the internal regulations for nurseries pertain our topic (not an official law). The sentences state that nurses should be encouraging mothers to breastfeed by securing a place for the nursing mother and receiving her at any time to feed her child in compliance with the provisions of Law 47. Little is known about knowledge, practices and attitudes in Lebanese day care centers regarding breastfeeding. Additionally, the extent to which day care stakeholders support breastfeeding in their nurseries is not known.

Studies done about breastfeeding in daycare centers:

With more women in the workforce, and short maternity leave, families rely more on childcare in nurseries or daycare centers. One of the most barriers that face mothers after delivery is the short maternity leave, especially in Lebanon where maternity leave is only 10 weeks. A cross-sectional study done by Saade, Barbour and Salameh in Lebanon in 2010 among 802 mothers showed that maternity leave was insufficient for 72.8% of women and affected rates of breastfeeding. A large number of mothers return to work within the first months postpartum what make non- parenteral care a necessity. Many studies showed that breastfeeding rates decreases after the mother goes back to work as we can see in Table 2. Little is known about individual centers' approach to breastfeeding even tough returning to work constitutes a major barrier to continued breastfeeding. Moreover, little is known about knowledge, practices and attitudes in Lebanese day care centers regarding breastfeeding. Since breastfeeding is an effective public health intervention that

improves infants and mothers' health worldwide, childcare workers who are often in direct contact with young mothers, may be ideal opportunities for breastfeeding promotion. Supportive stakeholders facilitate breastfeeding in day care centers. Yet, some proposed barriers that may face day care workers from supporting mothers may be, lack of knowledge about breastfeeding, lack of training about breastfeeding, cultural beliefs, overload of work, negative personal experience of breastfeeding, and unsupportive work environment (Figure 2)

Table 2. Effect of employment on breastfeeding rates.

PERCENTAGE OF INFANTS WHO ARE BREASTFED			
Maternal employment status	**Early Postpartum Period**	**Six Months of Age**	**One Year of Age**
Employed outside of the home	67.7	**Full time:** 22.8	**Full time:** 10.6
		Part time: 33.4	**Part time:** 19.2
Not employed outside of the home	68.0	35.4	22.0

ADAPTED FROM: AMERICAN FAMILY PHYSICIAN, *RETURNING TO WORK WHILE BREASTFEEDING,2003*

Table 3. Summary of studies done to access breastfeeding knowledge, practices and support in day cares centers.

Author, year	Study design	Objective	Methods	Sample	Results	Limitation	Conclusion
Souza et al, 2013	Cross-sectional	To evaluate the knowledge of public day care centers employees about breastfeeding and complementary feeding.	▪ A questionnaire applied to school principals, teachers, educators and general services assistants (GSA) included demographic and socioeconomic variables and questions about knowledge on breastfeeding, complementary feeding ▪ Kruskal-Wallis and qui-square test were used.	15 public day care centers randomly selected in the city of Uberlandia, Southeast Brazil.	▪ 304 employees participated in the study. ▪ The highest percentages of correct answers were noted for questions about exclusive breastfeeding: definition 97% (n=296) and duration ▪ There were no differences in the answers according to professional category, except for the negative influence of pacifiers on breastfeeding.	▪ The first limitation relates to the content, which included few questions about complementary feeding and did not address knowledge on consistency and texture of offered foods. ▪ The second limitation is regarding the age considered for introducing cow's milk (6 months).	Employees of public day care centers knew more about breastfeeding than about complementary feeding.
Lucas et al, 2013	Cross-sectional	This study focused on identifying child care providers' attitudes toward and knowledge about breastfeeding as well as	Questionnaires containing info about: Self-reported demographics, attitudes, knowledge, and perceptions about breastfeeding.	Seventy-five providers from 11 child care centers in the Baton Rouge, Louisiana, area.	▪ Responses demonstrated a generally positive attitude toward breastfeeding among child care providers ▪ knowledge deficit in terms of the health impacts and proper	Use of unvalidated attitude and knowledge scales.	▪ Child care providers need training about the benefits of human milk, proper handling of expressed milk, and ways to make centers more breastfeeding friendly.

		providers' perceptions about strategies to increase breastfeeding rates among mothers of infants in child care centers.			handling of breast milk. ▪ A minority of providers reported that their center's staff currently receives breastfeeding education, but most providers believed that measures to promote the use of breast milk in their center should target parents rather than the center staff.		▪ Many providers feel ineffective in supporting breastfeeding and are unaware of the role they may play in mothers' infant feeding decisions. ▪ Child care providers do not appear to believe they can influence parents' decisions about breastfeeding, educating and empowering them could play an important role in increasing breastfeeding rates.
Suan, Ayob & Rodzali, 2017	Qualitative	This study aimed to explore childcare workers' experiences of supporting breastfeeding at registered nurseries.	▪ A qualitative design to conduct in-depth, semi-structured interviews with child care workers. ▪ Attitudes towards exclusive breastfeeding practice, experiences of breastfeeding training and information, and experiences	ten childcare workers at seven registered nursery centres in Kuala Muda District, Malaysia.	▪ All participants demonstrated a positive attitude in supporting and promoting exclusive breastfeeding practice, mainly centered on the advantages of breastfeeding. ▪ Several issues emerged that include parents' choice on infant feeding practice,	▪ Qualitative design means make it not possible to generalize the findings. ▪ Participants were sampled only from nurseries registered	▪ Childcare workers may serve as another potential resource for sustaining exclusive breastfeeding at registered nurseries.

			supporting exclusive breastfeeding at the nursery were explored. ▪ They were also asked to suggest improvements.				
Clark et al, 2007	Cross sectional	The purpose of this study was to assess the knowledge, attitudes, behaviors and training needs of child care providers on infant feeding practices, specifically breastfeeding.	Needs assessment surveys for child care directors and infant room teachers were developed, tested and mailed	277 Colorado child care centers licensed to care for infants (<12 months); 1,385 surveys were mailed.	▪ A total of 267 surveys were received for an overall response rate of 20%. ▪ 79% of infant room teachers and directors reported low knowledge on ways to adequately store breastmilk and formula. ▪ Most of the directors and teachers would be interested in an infant feeding website.		▪ Child care directors and infant room teachers are in need of current, accessible infant feeding information.
Garth, Messer and Spatz, 2016	Cross sectional	To investigate individual child care centers' attitudes and policies related to breastfeeding in two distinct areas in Philadelphia.	▪ Data were collected by compiling a list of child care centers in the areas of study and conducting telephone surveys. ▪ Surveys were administered using an adapted tool from the New York State	166 centers that met inclusion criteria.	▪ A total of 47 of the 166 (28%) of centers completed the survey. ▪ There is room for improvement in education and training of staff on benefits of breastfeeding and human milk.		▪ Education of healthcare providers and child care center staff is necessary to ensure adherence to breastfeeding support guidelines. ▪ Nurses and other healthcare providers need to be aware of child care as a

			Department of Health. ▪ Data were analyzed using descriptive statistics.		▪ The majority of centers (95%) surveyed indicated they would not feed an infant anything besides human milk unless specifically stated in a feeding plan. ▪ 40% of centers had staff trained about benefits of breastfeeding and how to prepare and store human milk.		barrier to breastfeeding and the importance of providing comprehensive education and referral to community resources.

Proposed framework:

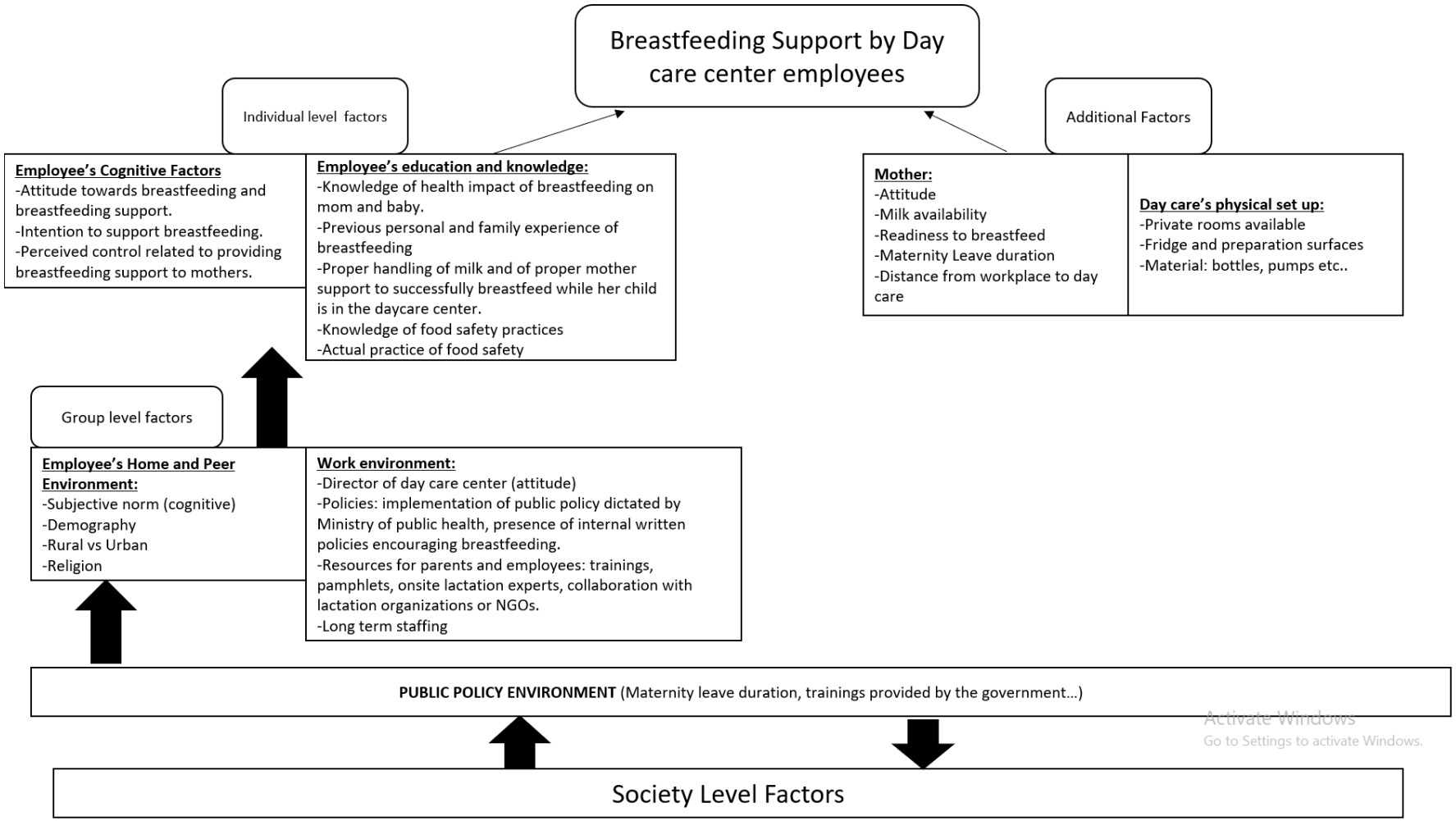

Figure 2. Tentative framework of factors that may affect day care caregivers support and attitude towards breastfeeding at different level factors

Research Objectives:

To determine knowledge, attitude, practices and support of day care caregivers (teachers, nurses, directors) towards breastfeeding in day care centers. Moreover, to determine the extent to which breastfeeding support is implemented in day care centers and to identify barriers that may be overcome in the future.

Materials and Methods:

Data collection: Study Design:

This was a cross-sectional study with mixed research design. Voice-recorded interviews with a convenience sample of daycare center directors were conducted for an in-depth investigation of supports and constraints of breastfeeding support in daycare centers in north Lebanon (Akkar, Zgharta and Tripoli). A questionnaire was administered to caregivers and directors to explore knowledge, practices, and attitude related to breastfeeding. Self-administered online surveys were used to collect quantitative data about knowledge, attitude and practices of breastfeeding among daycares caregivers. The survey's duration was of 10 minutes whereas the interviews lasted for 15-20 minutes. Written consent forms were completed and signed by all participants prior to data collection. Ethical approval was obtained by the NDU review committee.

Quantitative part of the study:

Consent forms and surveys were handed personally by Miss Christelle Boutros. The surveys were available in English and French. The caregivers' survey was based on a previous validated questionnaire (Zakaria et al. 2019).We took only parts related to breastfeeding, and the directors'

survey was based on Clark et al. 2007. Both anonymously captured information related to knowledge, attitude and practices related to breastfeeding in day care centers. (Appendix A & B)

Caregivers surveys consists of 4 parts: Personal information about participants, knowledge, general questions related to breastfeeding, attitude and practices.

The questions in the knowledge section had 3 point "True, False, don't know". 1 point was given for every correct answer and 0 for an incorrect or "don't know" answer. The possible score for this section ranged between 0 to 44. The scores were calculated. Then they were converted to percentages. A higher percentage indicated better knowledge. And same for attitude and practices.

Questions under breastfeeding knowledge (44 questions), attitude (33 questions) and practices (19 questions) were used to develop a scaled scoring system to categorize these aspects as good, fair or poor.

- Knowledge: good (36-44); fair (22-35); poor (0-21)
- Attitude: good (26-33); fair (17-25); poor (0-16)
- Practices: good (15-19); fair (10-14); poor (0-9)

Data were analyzed to generate descriptive statistics using SPSS; version 25, Mac.

Qualitative part of the study:

Interviews with daycare center directors (n=15; 50% response rate) were conducted by phone by Miss Christelle Boutros. The interview questions addressed the same questions in the survey but with an in-depth discussion about support of breastfeeding (or lack thereof) in daycare centers.

Results:

Of the 30 registered daycare centers in our study area (Akkar, Tripoli, Zgharta). We were able to collect data from directors at n=15 day care centers, 6 directors (20%) were unreachable despite several communication attempts, and 9 (30%) directors declined to participate due to a variety of reasons such as ***"wrong timing due to this hard situation [COVID] we are facing, so I prefer not to participate"*** or ***"we already participated in university studies before, so we don't want to participate this time, let someone else participate".***

Daycares characteristics:

Daycare centers characteristics are summarized in Table 4. Briefly, more than two thirds of the centers had 20-50 children enrolled at a time, but infants less than six months of age ranged between 1 to 7. These low numbers were due to the Covid-19 pandemic as stated by the directors. The number of caregivers in a daycare was from 2 to 15, working for the same center for 10 days up 6 years.

Breastfeeding practices at daycare centers:

None of the directors reported having a formal written policy related to breastfeeding at the daycare center (Table 4). However, 40% of directors stated that they have informal policies that they share verbally with the parents, such as conversations between mothers and caregivers. For example, all directors reported mothers have the right to visit the daycare center whenever she wants to feed her child. ***"Mother have the right to come to breastfeed her child whenever she wants, even our employees have the right to breastfeed their children during working hours".***

Daycare centers were well equipped with kitchen appliances like microwaves (93.3%), fridges (100%), preparation counters and labeling kits (100%). 9 (60%) had a breastfeeding room available. However, 13.3% stated that they always manage to have a substitute ready for the breastfeeding mother, such as babies' room, isolation room or director office. Only 20% of directors stated that they provide training related to breastfeeding for their employees.

Directors' characteristics:

Demographic characteristics of directors are summarized in Table 5. All but 2 were female (86.7%) and all were married with children, 26.7% were aged between 30-35 (n= 4). 66% had breastfeeding experience for 6 months. Almost all participants had a university degree or higher educational degrees (93.3%) with more than one year experience in childcare (median 11.6; IQR 14).

100% of directors stated that there is no official policy related to breastfeeding in day care centers set by government. All but 1 was aware of a national breastfeeding policy. All characteristics are summarized in table 5.

Table 4. Characteristics of the day cares center.

Variable	Number	%	Mean ± SD	Median + IQR
Region				
Akkar	5	(33.3)	28	
Tripoli	5	(33.3)		
Zgharta	5	(33.3)		
Workload				
Total number of children in center				
10-15				
16-20	4	(26.7)		
21-29	0	(0)		
30-40	3	(20)		
41-50	6	(40)		
	2	(13.3)		

Total number of children ≤ 6 months			
0	8	(53.3)	
1-3	5	(33.3)	
4-7	2	(13.3)	
Employment Scope (Age range of children at daycares)	10 days		
Min age	6 years		
Max age			
Employees			
Total number of employees in the daycare			6+
2-5	7	(46.7)	
6-10	6	(40)	
11-15	2	(13.3)	
Min	2		
Max	15		
Facilities at the child care center			
Policy regarding breastfeeding as oral conversation	6	(40)	
Yes	9	(60)	
No	15	(100)	
Not written policy			
Mother is able to breastfeed her child in the childcare center (Yes)	15	(100)	
Breastfeeding room available			
Yes	9	(60)	
No	4	(26.7)	
Substitute	2	(13.3)	
Educational materials (pamphlets, posters)			
Yes	3	(20)	
No	12	(80)	
Employees can assist mother when breastfeeding			
Yes	2	(13.3)	
No	13	(86.7)	
Training for employees related to breastfeeding			
Yes	3	(20)	
No	12	(80)	
Mother request assistance during Breastfeeding			
No	15	(100)	
Labeling Kits (Yes)	15	(100)	

Fridge (Yes)	15	(100)
Preparation counters (Yes)	15	(100)
Microwave		
Yes	14	(93.3)
No	1	(6.7)
Electricity (Yes)	15	(100)
Number of Breastfeeding mothers in the center		
0	11	(73.3)
1-2	2	(13.3)
≥3	2	(13.3)
Lactation expert visits daycare		
Yes	1	(6.7)
No	14	(93.3)

Table 5. Characteristics of directors of daycares centers (n=15).

Variable	Number	%	Mean ± SD	Median + IQR
Age (Years)			42 years	41.5+11
30-35	4	(26.7)		
36-39	2	(13.3)		
40-44	3	(20)		
45-49	3	(20)		
50-55	1	(6.7)		
≥55	1	(6.7)		
(1 missing)		(6.7)		
Gender				
Female	13	(86.7)		
Male	2	(13.3)		
Marital status				
Married	15	(100)		
Children				
Yes	15	(100)		
Number of Children				
1-2	9	(60)		
3-4	6	(40)		
Educational Background				
Less than Baccalaureate	1	(6.7)		
Bachelor	11	(73.3)		
Masters	2	(13.3)		
PHD or equivalent	1	(6.7)		
Employment				
Total working experience (years)			14.8 ± 8.7	16 + 14
1-4 Years	1	(6.7)		
5-9 Years	5	(33.3)		
10-14 Years	1	(6.7)		
15-19 Years	5	(33.3)		
>20	3	(20)		

Working in current center			10 ± 5	8 + 10
1-4 Years	1	(6.7)		
5-9 Years	7	(46.7)		
10-14 Years	3	(20)		
15-19 Years	4	(26.7)		
>20	0	(0)		
Breastfeeding Experience				
Only Breastfeeding	8	(53.3)		
Only formula milk	2	(13.3)		
Combination of both	5	(33.3)		
Had a breastfeeding experience	11	(73.3)		
Source of information about breastfeeding				
Internet	7			
Doctor	6			
Lactation Consultant	2			
Books	2			
Breastfeeding duration (month)				
Minimum	2			
Maximum	30			
Training related to breastfeeding				
Yes	3	(20)		
No	12	(80)		
Training by government	0	(0)		
Exclusive Breastfeeding for 6 months (Yes)	10	(66.6)		
Know a national Breastfeeding policy	1	(6.7)		
Yes	14	(93.3)		
No				

Qualitative Part:

1.Cognitive Determinants of breastfeeding support:

1-a. Knowledge:

Directors with different educational background (level and type of degree owned) or without any degree seemed equally supportive of breastfeeding

Formal training:

All directors reported that they did not undergo any formal breastfeeding-related training organized by MOPH or syndicate of DCC. Rather, trainings were focused on pedagogy and education and child behavior.

"We did many trainings with the syndicate of DCC about different topics, including autism, psychological problems, special needs, deaf-mute and speech therapy but nothing related to breastfeeding" (D-15)

"Sometimes in some sessions, we may talk about breastfeeding, they give us pamphlets about this topic but not more than that" (D-13)

Some expressed that the government neglected its role in the provision of adequate and diversified trainings, and directors stated that they were never asked to participate or undergo in any training related to breastfeeding.

"Not even once we were asked by MOPH [Ministry of Public Health] to do any training related to breastfeeding, if we were asked surely, we will do it" (D-1)

"They [talking about the government officials] come only to do annual checkup." (D-5)

Few expressed the need for an obligatory training program to be set by government as follows.

"Nurses should always undergo training and register in courses related to bf to become knowledgeable in this topic and provide great support for mothers when needed" (D-5)

Other sources of information and training:

Access to technology was seen to have impact on directors' learning processes. Few reported it encouraged them to pursue more information about different daycare-specific topics including breastfeeding. Very few directors shared their experience of gaining knowledge about breastfeeding from online courses. ***"During quarantine, I took many online courses and attended zoom meetings related to breastfeeding to increase my knowledge and enhance my breastfeeding practices and support in my daycare "(D-3)***

Others gained knowledge from workshops, their owned degree or from a lactation consultant, midwife or a doctor.

"A friend of mine is a midwife and her child is enrolled in the daycare, so I talk to her frequently and ask her to provide employees about more information related to breastfeeding" (D-10).

Few directors stated that employees have no time to undergo training and nurses should know all the essential information about breastfeeding so no need for training. However, others highlighted the importance of training certification (even if it will cost them money) to add their knowledge as a team.

"I pay money and attend me and my employees all training sessions" (D-15).

One director highlighted the importance of a lactation consultant, to visit day care on a routine basis.

Directors were asked to share their thoughts on how to improve breastfeeding support and the effective ways to improve the practice of exclusive breastfeeding. They all agreed that information about benefits of breastfeeding should be delivered to parents. To achieve this, most of the directors suggested a short presentation or workshops to talk about breastfeeding presented by an expert (doctor, lactation expert, and dietitian) other suggested the use of technology since everyone nowadays have a phone and access to social media.

"Nowadays, everything on phone is the easiest way to deliver information. A simple picture or a short video that can be sent by WhatsApp or posted on social media not, exceeding 30 seconds, containing valuable information will be helpful. Since breastfeeding is as well an emotional practice, focusing in the video on the emotional side of breastfeeding and how it enhances the relationship between mother and her child, may encourage mothers to breastfeed" (D-8)

1b. Attitude, intention and perceived control:

In general, all participants were supportive of breastfeeding. They believed breastfeeding had a very important role on the health of both mother and child even when their personal experience was not very successful. This attitude was affected mainly by their knowledge of the advantages of breastfeeding. Almost all of them were aware of its benefits on infant health. Some participants shared their experiences of breastfeeding, and highlighted the benefits of breastmilk on infant's health, what motivates them to support breastfeeding at the nursery.

"Breast milk is a treasure". (D-10)

"I encourage breastfeeding a lot, it's the best feeding option for a baby. Breastfed infants have stronger immunity. I breastfed both of my infants for 2.5 years, they both didn't take antibiotics until they reached 6 years of age, and until now they both rarely catch viruses or flu, this is due to the immunity they acquired during breastfeeding period."(D-14)

"Breastmilk is the best option for a child, I notice when the baby is drinking breastmilk, he will finish it more rapidly than formula-fed infants, also I notice that it's easily digested by the child" (D-6)

This attitude was very clear among DCC directors when they showed their support to breastfeeding mothers by facilitating infant feeding by expressed milk. Although they all allowed mothers to provide them with expressed breastmilk, some directors felt it's harder to deal with breastmilk than formula and it's a big responsibility. In their opinion, breastmilk needs additional critical work, it should be handled with utmost care, such as special storing, reheating milk in luke warm water before feeding it to the baby in order to reach the mother's normal body temperature.

"I tell my employees please pretend you are carrying gold when dealing with breastmilk make sure not even one drop falls from the bottle. So, for employees, it's easier to deal with formula milk, they don't have critical work like when dealing with breastmilk" (D-10)

"It is easier for us if the mother come and breastfeed her child in the nursery instead of giving us expressed breastmilk since expressed milk should be handled with care" (D-9)

Upon child enrollment in the DCC, most of the directors discussed child feeding with parents and told them that they can come to breastfeed their child whenever they want, it's their right to do so, they talk the mother about breastfeeding, show her breastfeeding room… But this happens only once, then they will not intervene anymore.

"I give advice to parents about breastfeeding and I inform mother about benefits of breastfeeding, but this will happen only one time when mother come to register her child. I won't repeat so she doesn't feel I am pressuring her" (D-9). Although directors were highly supportive of breastfeeding, most of them stated that it was the personal choice of the mother whether to continue breastfeeding or not. This fact discouraged most of the directors to do more attempts at this level.

"I encourage mothers a lot, every twinkle star's mom who is breastfeeding will have a special discount and a free consultation session with a lactation consultant… But honestly many mothers have no interest in breastfeeding." (D-3)

"If mother is breastfeeding, we make her feel great, we always tell her you are a great mom!" (D-12)

"I feel my support is limited because in the end it's a personal decision [taken by the mother]" (D-7)

Most mothers have already weaned their babies upon enrollment in the DCC.

"I recommend and encourage all mothers to breastfeed since it has many benefits. I cannot generalize, but some mothers have a little interest about breastfeeding and wean their baby after a very short period." (D-6)

"Majority of mothers wean their baby before registering them in the daycare. So, we can do nothing at this point" (D-1)

Even if they encourage breastfeeding; some directors stated that it's not their responsibility to increase parents' knowledge about breastfeeding and it's not in their job description to do so.

"I feel it's not our domain [to teach parents about BF]" (D-13)

During the Covid-19 pandemic, the rate of breastfeeding in daycares decreased since the number of infants < 6 months decreased.

"now due to COVID-19 pandemic, no mothers are coming to breastfeed their child at the daycare, but last year 3 out of 5 mothers came to breastfeed their child at the daycare" (D-12)

2- Environmental determinants and barriers:

A-Physical environment:

All interviewed directors were aware of the physical set up necessary for accommodating breastfeeding in the daycare. All DCC had electricity and well equipped with kitchen appliances like fridges, microwaves, ovens, labeling kits, preparation counters. Most of the DCC had a private room intended for breastfeeding, when no special room is present director stated that they always manage to have a substitute like babies or isolation room, where mother can sit comfortably to breastfeed her child.

B-Economical environment:

Most of the DCC directors agreed that employees play a role in implementing breastfeeding support in DCC. Thus, they also agreed that employee turnover did not affect the continuation of breastfeeding support. Although they preferred if employees stay for a long time because after working for many years at the DCC employees become experienced. It will cost them more time and money to train newly hired employees.

"I really work hard on my employees and train them a lot, they become much experienced. I prefer if they stay for a long period"(D-15)

A director felt that employee turnover is necessary from time to time, in her opinion, some employees become less enthusiastic to work after a period of time.

"Long term staffing help us, but at the same time it has a bad side, employees will become less enthusiastic to work and you have always to motivate them"(D-3)

Some participants felt that breastmilk is more economical and helps parents save money, which will encourage them to breastfeed**.**

"Now in Lebanon with the economic crisis we are facing, no much support is needed anymore, the prices of formula milk will be the biggest support & will encourage mothers to breastfeed. After seeing the prices of formula milk, they will surely breastfeed, believe me". (D-4)

C-Political environment:

Work policies were discussed with almost all directors. Few directors found maternity leave of 70 days was too short and affect negatively the decision of breastfeeding. They found that labor law should be amended.

"The deprivation the mother experiences by leaving her child from a very young age, not exceeding 70 days, is not easy for her and put her under great psychological pressures which may affect her milk supply"(D-10)

"In addition to the emotional pain, the mother is still experiencing physical exhaustion from childbirth and watching over her child all night. This will affect her decision of breastfeeding continuation". (D-10)

Furthermore, most directors stated that even if a mother decided to complete breastfeeding after returning to work and registering her child in the DCC, very few companies allowed nursing breaks, and the work setting was not convenient to pump milk during working hours.

"Women working in gendarmerie for example, until 6 months if the responsible officer has compassion, he gives nursing mother permission to go breastfeed, but if he does not have mercy, he tells her that she does not have the right to leave"(D-11)

One mother told a director:

"I am not ready to hear any cruel words from my responsible, so I stopped breastfeeding"(D-10)

One director discussed how work policies (for women) of international NGO's working in their village encourage mothers who work with them to breastfeed.

"International organizations working in our village, have a special policy for breastfeeding workers. If mother is breastfeeding, her work time is only till 3 p.m. (normally till 4.30 p.m.) and she has the right to visit the nursery every 2 hours to bf her child. This became a great incentive for employees and encouraged them to bf." (D-10)

Few directors highlighted the role of profession and how far nursery is from worksite on the decision of breastfeeding.

"Mothers who come to breastfeed in the nursery are school teachers or nurses that their worksite is very close to the nursery" (D-12)

Regarding national breastfeeding policies, all but one was not aware of the existence of any national bf policy. All stated that there is no special policy set by the government related to

breastfeeding, but in some official documents, they only state that the mother has the right to breastfeed in the nursery.

Moreover, almost all directors insisted that mother decision and attitude towards breastfeeding is the only factor that matter. Although the former would have provided all encouragements and set up to do so, and company they work in provide them nursing breaks, they take the decision to stop breastfeeding.

"Even though some mothers had the right to have a nursing break, honestly what I noticed is that some mothers will be enthusiastic and come to the nursery only for the few first days then they will stop. They take this break time to go for a short trip or go shopping or doing something else, I don't know, but they will not come to the nursery to feed their child"(D-6)

"They care about their shape, they are kind of selfish, they need more free time for themselves. Eventually, it's a personal decision the mother takes" (D-5)

Some interviewed directors stated that health services play an important role in supporting early breastfeeding practices. Hospitals and health services are not always conductive to breastfeeding. A major barrier is the apparent distribution of free infant formula as a gift, and not promoting in rooming and skin-to-skin.

One suggested modifying national breastfeeding policy to become stricter regarding hospitals. ***"Many Lebanese hospitals don't help mothers and provide them the needed support to start breastfeeding. E.g., they give mother formula milk containers as a gift postpartum"(D-3).***

There is no formal written policy related to breastfeeding currently available at any registered nurseries. However, DCC directors stated that they have policies, not formal and not written, that they share it orally in terms of conversation with both parents & employees.

D-Sociocultural environment:

Some directors stated that the region the mother is coming from usually affects her decision to breastfeed. However, not all directors agreed. One stated: ***"If a mother is coming from a village she will breastfeed" (D-4).*** Another stated: "***Big number of mothers in Akkar area do not care if they breastfeed or not" (D-15).*** So, we cannot generalize.

Mothers characteristics:

Mothers beliefs of breastfeeding are greatly affected by culture: mothers' misconception (such as no enough milk, or worrying about child satiety) and negative perceptions (such as breastfeeding damage breast shape). Furthermore, some directors stated that the mother's body image and feeling of fear had an impact on their intent to breastfeed. ***"Decision, whether to breastfeed or not, can also be affected by mother fears, mainly if she's a mother for the first time, everything changed in her life, this will affect her decision of breastfeeding"(D-11)***

Success stories of breastfeeding was an inspiration for few directors to increase their support of BF in DCC ***"I have on mother who's very interested in bf, her girl is 1.5 years old now and she's still bf her, I respect her"(D-1)***

Caregivers:

A total of 30 questionnaires were sent online, but only 6 participants submitted a completed questionnaire yielding a response rate of 20%. This low response rate may be a reason of different variables such as work pressure, economical and political crisis we are facing now in Lebanon, daycares closure…

Description and characteristics of participants:

Participants in the study sample were all females aged between 23 and 56 (Median= 33; IQR= 16.50). 5 were married (83.3%), 2 (40%) had children and they did not have a n exclusive breastfeeding experience. Five had baccalaureate (83.3%) and 1 had a bachelor degree (16.7%). They were working in their profession between 1 to > 20 year. (Table 6).

Table 6. Demographic & socioeconomic characteristics of caregivers at the daycare centers (n=6).

Variable	Number	%	Mean ± SD	Median + IQR
Age (in years)			35 years	33+16.50
18-24	1	(16.7)		
25-29	1	(16.7)		
30-34	1	(16.7)		
35-39	2	(33.3)		
40-44	0	(0)		
≥45	1	(16.7)		
Gender (female)	6	(100)		
Marital status				
Married	5	(83.3)		
Not Married	1	(16.7)		
Children				
Yes	2	(40)		
No	3	(60)		
Number of Children				
1	0	(0)		
2	1	(50)		
3	1	(50)		
Fed your children				
Formula only	1	(50)		
Breast milk only	0	(0)		
Combination of both	1	(50)		
Educational Background				
Less than Baccalaureate	0			
Baccalaureate	5	(83.3)		
Bachelor	1	(16.7)		
Masters	0			
PHD or equivalent	0			

Total working experience (years)		
1-4 Years	1	(16.7)
5-9 Years	3	(50)
10-14 Years	1	(16.7)
15-19 Years	0	(0)
>20	1	(16.7)
Experience in current center		
1-4 Years	2	(33.3)
5-9 Years	3	(50)
≥10	0	
(1 missing)		
Employment scope care of child from 3 month up to 2y/o		
Yes	3	(50)
No	3	(50)
Training related to breastfeeding		
Yes	2	(33.3)
No	4	(66.7)

Caregivers breastfeeding knowledge, attitude, and practices:

Caregivers knowledge was poor to fair ranging between 40.9% and 68%. Years of experience, educational background and degree owned did not affect the level of knowledge

Only 2 (33.3%) caregivers were found to have a good breastfeeding attitude, 3 (50%) had a fair attitude. 5 caregivers (83.3%) reported a positive attitude toward encouraging mothers to breastfeed in the child daycare center (Appendix D).

Only 1 (20%) out of 5 caregivers was found to adopt good breastfeeding practices, 3 (60%) adopted fair practices, and 1 (20%) adopted poor practices (Appendix D).

When asked about support 4 (66.7%) stated that they are capable of providing breastfeeding support to mothers, 3(50%) stated that directors also present a great breastfeeding support and 3 (50%) agreed that coworker attitude affects breastfeeding support to mothers. (Appendix D)

They all agreed that they felt mothers are ready and willing to breastfeed. Thus, there are some factors that will affect mothers' willingness to breastfeed and some barriers that may limit mothers from providing breastmilk to their infant who in daycare. (Figure 3&4)

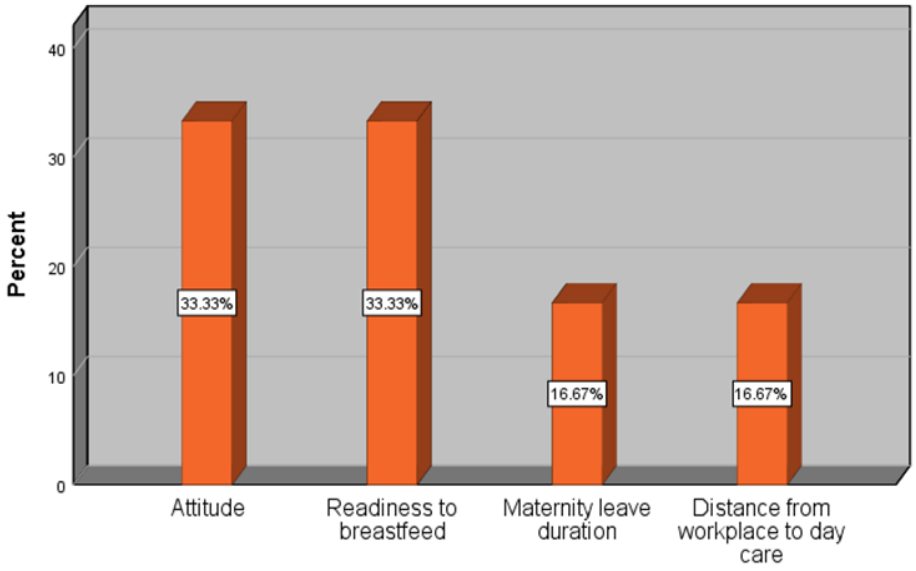

Figure 3 Factors that affect mother's willingness to breastfeed

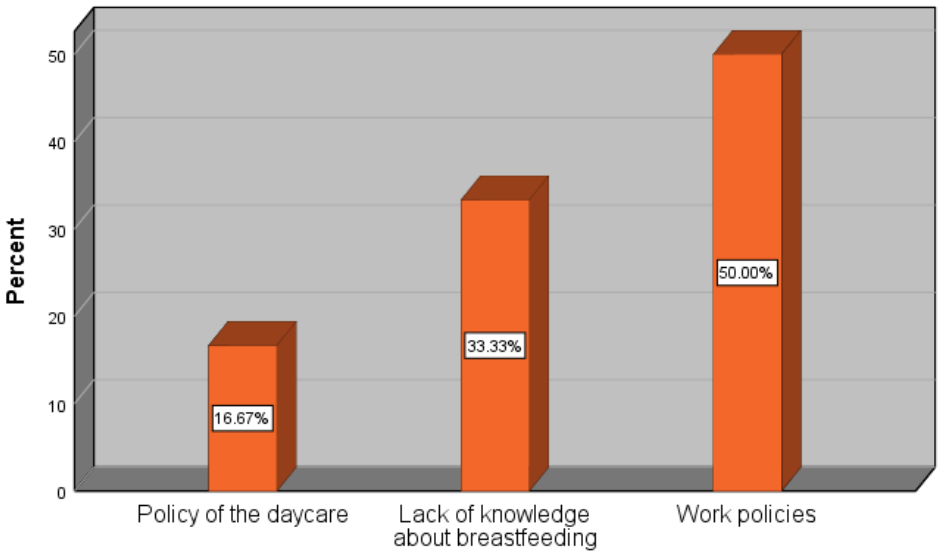

Figure 4. Barriers that limit mother from providing breastmilk to their infants when in daycare.

Discussion:

With more women in the workplace, non-parental care is a necessity, so child care workers who are often in direct contact with mothers may be ideal opportunities for breastfeeding promotion. Batan et al, found that supporting mothers to breastfeed once they register their child at the daycare may help prolong breastfeeding duration up to 6 months. This finding highlights the importance of child care workers in enhancing breastfeeding practices, mainly because infants enroll in daycare at a very young age, when most of the mother goes back to work after maternity leave period of 70 days is over.

This study examined knowledge, attitude, practices, and extent to which breastfeeding support is implemented within a child care setting, in addition to determinants and barriers of breastfeeding.

Till now there is no standard official policy related to breastfeeding available for Lebanese daycare centers. Additionally, there is no written policy related to breastfeeding in any day care center. However, informal policies seem to be supportive of breastfeeding. This result was consistent with

the study done by Javanparast et al. in Australis in 2012 were they found that few childcare centers had written policies related to breastfeeding. Our data showed up positive attitude among participants, directors (n=15), and employees (n=6), toward supporting and encouraging breastfeeding practices at the daycare centers. This result is consistent with other studies finding in the literature, were they found that daycares principals and caregivers were supportive to breastfeeding (Clark et al, 2007; Lucas et al 2013; Mohd Suan et al., 2017)

Nonetheless, many issues discussed by directors during the interview need highlighting. Consistent with others (Mohd Sun et al., 2017; Javanparast et al.,2012) the most common concern was the mother's decision to (dis)continue breastfeeding prior to enrolling the infant at the daycare center. Directors felt they have to feed the child according to the mother's decision, and felt they helpless in not being able to influence feeding decisions. Moreover, the mother's decision to breastfeed was affected by many determinants and barriers, such as cultural determinants, work policies, and health services practices. These findings were consistent with other studies' outcomes in the literature (Akik, Ghatas & El Jardali, 2015; Mohd Suan et al,2017). Increasing awareness of breastfeeding benefits and practices for parents and employees by delivering talks and presentations hosted by health professionals about the importance of breastfeeding was an important suggestion by directors to enhance exclusive breastfeeding practices. This statement was similar to the finding of a study done in Malaysia and another one done in Louisiana where they found that employees as well as parents need awareness regarding breastfeeding. (Lucas et al, 2013; Mohd Suan et al, 2017).

Additionally, all participants in our study mentioned that they did not undergo any training related to breastfeeding hosted by the government. This reflects that the government has little interest in enhancing breastfeeding practices at daycares. Whereas, other studies showed that daycares center

workers participated in courses and programs related to breastfeeding prepared by the government, what highlights the commitment of the government in enhancing breastfeeding support and practices at nurseries (Mohd Suan et al, 2017). Employees' knowledge was poor to fair indicating a need for training about breastfeeding. This finding supporting those of other studies that also showed a need for training and breastfeeding issues (Clark et al,2008). Moreover, our finding suggested that employees' practices need improvement. Some inappropriate practices highlighted that there is a lack of essential information about breastfeeding, this can be managed by appropriate training and registering in obligatory courses related to breastfeeding. This result was consistent with results of Lucas et al., 2013 were they found that childcare providers need training about the benefits of human milk, proper handling of expressed milk, and ways to make centers more breastfeeding friendly.

Our data contribute to the growth of research targeting knowledge, attribute, and practices of breastfeeding in daycare centers. There are many limitations that need to be addressed. First, the small sample size and low response rate limit generalizability. The COVID-19 pandemic, along with the economic and political crisis in Lebanon largely hindered our research efforts. Second, while this research provided unique access to an under-studied and under-served geographical area in Lebanon, extrapolations to other more affluent and socioeconomically diverse areas should be done with caution. Additionally, we may have information bias, since directors may tend to reply by what they think is appropriate for the interviewer and not what they really think or feel.

Conclusion:

To conclude, exclusive breastfeeding continuation after returning to work requires great support. Although breastfeeding support from leadership (directors) in daycares centers was generally

good, but we found big lack of resources to support breastfeeding, mainly lack of official and written policies related to breastfeeding. So, working to have an official written policy by government or syndicate of DCC may help daycare workers to enhance and understand more their role in supporting breastfeeding. In addition, lack of training opportunities made breastfeeding knowledge and practices among caregivers suboptimal. Therefore, child care providers need educational efforts to enhance exclusive breastfeeding knowledge and practices. For future directions we may expand geographic locations including both rural and urban areas, and integrating a wider sample of more Lebanese day care centers.

Appendix A:

Assessment of breastfeeding support, knowledge, attitude and practices in North Lebanon daycare centers- A cross-sectional study.

This survey aims to assess knowledge, practices and breastfeeding support among child care centers employees. We appreciate your cooperation to complete the following survey. The estimated time to complete this survey is approximately 20 minutes. Participation is voluntary. Questionnaires are anonymous and confidential. All responses will be compiled together and analyzed as a group. There are no foreseeable risk or direct benefits from participating.

Personal information:

ID:

1. Age ___ Years

2. Gender ☐ Female ☐ Male

3. Marital status ☐ Married ☐ Not married

4. Do you have children? ☐ Yes ☐ No (skip to question 6).

   If yes, specify how many: ___

5. Were your children breastfed? ☐ Yes ☐ No

   If yes, specify for how many months on average: ___

6. Highest degree ☐ Baccalaureate ☐ Bachelor ☐ Masters or higher

7. Specify your work ☐ Nurse ☐ Teacher/ teacher aid ☐ Helper ☐ Other Specify: _____

8. For how many years have you been working in your profession generally? ___
9. For how many years have you been working in this daycare? ___
10. Do you currently work with infants aged 3 months up to 2 years of age? ☐ Yes ☐ No

Knowledge:

Check (X) your answer choice. Answer all of the questions.

		True	False	Don't know
1.	Colostrum has a high antibody content.	☐	☐	☐
2.	Breast milk causes constipation in infants.	☐	☐	☐
3.	Breastfeeding reduces the risk of infants getting lung infections.	☐	☐	☐
4.	Breast milk that looks diluted is less nutritious	☐	☐	☐
5.	Breastfeeding causes infants to have low body weights.	☐	☐	☐
6.	The common cold risk can be reduced by breast milk.	☐	☐	☐
7.	Breast milk is not easily contaminated when compared to formula.	☐	☐	☐
8.	Breastfeeding calms the infant.	☐	☐	☐
9.	Mothers who breastfeed are at a higher risk of getting breast cancer.	☐	☐	☐
10.	Breastfeeding infants have daily bowel movements.	☐	☐	☐
11.	Infants will have normal weight gain with optimal breastfeeding.	☐	☐	☐
12.	Breastfeeding increases an infant's intelligence.	☐	☐	☐
13.	Infants sleep well when they are getting sufficient breast milk.	☐	☐	☐
14.	Breastfeeding causes infant to have diarrhea.	☐	☐	☐
15.	Breastfeeding causes maldevelopment of the gums and teeth.	☐	☐	☐

16. Colostrum is difficult to digest.	☐	☐	☐
17. Breastfeeding should continue even when the child is sick.	☐	☐	☐
18. Formula provides better protection from allergies when compared to breast milk.	☐	☐	☐
19. Infants should be given only breast milk from birth until 6 months of age.	☐	☐	☐
20. Breastfeeding should be in accordance with the infant's demand.	☐	☐	☐
21. Infants can be given plain water during the exclusive breastfeeding period.	☐	☐	☐
22. Infants can be given tea or herbal infusions during the exclusive breastfeeding period	☐	☐	☐
23. Exclusive breastfeeding means that infants are only given breast milk from birth to 6 months of age.	☐	☐	☐
24. Breastfeeding should be continued until the infant is 2 years old or older.	☐	☐	☐
25. The mother has to breastfeed every 3 hours.	☐	☐	☐
26. The correct position during breastfeeding ensures effective breastfeeding.	☐	☐	☐
27. Expressed breast milk that has been thawed can be stored again.	☐	☐	☐
28. The expressed breast milk container needs to be labelled with infant's name, time, and date.	☐	☐	☐
29. Frozen expressed breast milk can be thawed on the stove.	☐	☐	☐
30. Breastfeeding should be continued up to 2 years or more in addition to complementary food.	☐	☐	☐
31. The use of an artificial teat facilitates breastfeeding.	☐	☐	☐
32. Expressed breast milk can be stored for up to 3 months in the freezer of a 2-door refrigerator.	☐	☐	☐
33. Providing plain water after each breastfeeding session is encouraged.	☐	☐	☐
34. Newly expressed breast milk can be mixed together in a container with previously expressed breast milk.	☐	☐	☐
35. Formula is nutritious because it contains added docosahexaenoic acid (DHA).	☐	☐	☐
36. Frozen expressed breast milk can be thawed in the microwave.	☐	☐	☐
37. Expressed breast milk that has been thawed completely should be consumed in an hour.	☐	☐	☐

38. Formula can be kept longer at room temperature when compared to breast milk. ☐ ☐ ☐
39. Frozen expressed breast milk that has been thawed can be stored in the chilled section of the refrigerator for 24 hours. ☐ ☐ ☐
40. Expressed breast milk stored in the chilled section of the refrigerator needs to be consumed immediately if the power supply is disconnected. ☐ ☐ ☐
41. Frozen expressed breast milk can be thawed in lukewarm water. ☐ ☐ ☐
42. The "first in, first out" method refers to expressed breast milk that has been stored earlier being consumed first. ☐ ☐ ☐
43. Frozen expressed breast milk that has been thawed can be refrozen again. ☐ ☐ ☐
44. Expressed breast milk can last for 4 hours at room temperature. ☐ ☐ ☐

Attitude:

Answer all of the questions according to the scale below. Check (X) the box with your answer choice.

1	2	3	4	5
Strongly disagree	**Disagree**	**Not sure**	**Agree**	**Strongly disagree**

	Strongly agree	**Disagree**	**Not sure**	**Agree**	**Strongly disagree**
1. I believe mother's milk is important for an infant.	☐	☐	☐	☐	☐
2. I think infants who drink mother's milk are easier to manage.	☐	☐	☐	☐	☐
3. I believe that breast milk is economical.	☐	☐	☐	☐	☐
4. I assume breastfeeding requires expensive equipment.	☐	☐	☐	☐	☐
5. I think breastfeeding is something outdated.	☐	☐	☐	☐	☐
6. I think expressed breast milk is easier to manage than formula.	☐	☐	☐	☐	☐

7. I think exclusive breastfeeding is the best option for working mothers.	☐	☐	☐	☐	☐
8. I think breast milk increases the bond between mothers and infants.	☐	☐	☐	☐	☐
9. I think breastfeeding is tiring.	☐	☐	☐	☐	☐
10 I think infants who drink formula choke more easily.	☐	☐	☐	☐	☐
11 I think taking care of a breastfed infant is more difficult than taking care of those who drink formula.	☐	☐	☐	☐	☐
12 I believe breast milk is nutritious.	☐	☐	☐	☐	☐
13 I think breastfeeding is a waste of time.	☐	☐	☐	☐	☐
14 I believe infants who drink breast milk are healthier.	☐	☐	☐	☐	☐
15 I think breastfeeding is embarrassing.	☐	☐	☐	☐	☐
16 I am proud to see working mothers continue breastfeeding.	☐	☐	☐	☐	☐
17 I feel that it is easy to handle expressed breast milk.	☐	☐	☐	☐	☐
18 I do not like seeing mothers spend time on breastfeeding.	☐	☐	☐	☐	☐
19 I am happy that breastfed infants grow well.	☐	☐	☐	☐	☐
20 I am happy that breastfed infants rarely have fevers.	☐	☐	☐	☐	☐
21 I am proud to see mothers who breastfeed.	☐	☐	☐	☐	☐
22 I am embarrassed to see mothers breastfeeding in this childcare center.	☐	☐	☐	☐	☐
23 I enjoy taking care of breastfed infants.	☐	☐	☐	☐	☐
24 I will support the practice of breastfeeding in childcare centers.	☐	☐	☐	☐	☐
25 I will encourage mothers to breastfeed in this childcare center.	☐	☐	☐	☐	☐
26 I would like to increase my knowledge of breastfeeding.	☐	☐	☐	☐	☐

27	I will handle expressed breast milk with the utmost care.	☐	☐	☐	☐	☐
28	I would like to participate in the breastfeeding training program.	☐	☐	☐	☐	☐
29	I will receive the expressed breast milk to be used in this childcare center.	☐	☐	☐	☐	☐
30	I will encourage mothers to give formula as well as breast milk if the infant is 6 months old.	☐	☐	☐	☐	☐
31	I will make sure the infant is burped sufficiently after a milk feeding.	☐	☐	☐	☐	☐
32	I will correct any inaccurate information regarding breastfeeding.	☐	☐	☐	☐	☐
33	I will disseminate information on the benefits of breastfeeding.	☐	☐	☐	☐	☐

General:

1. What barriers do you feel limit mothers from providing breastmilk to their infants when in day care?

_____

_____

_____

2. What do you think can be done to support mothers to continue providing breastmilk after their infants enroll in day care?

_____

_____

_____

3. Do you feel mothers want to continue breastfeeding their infants after they are enrolled in the day care? ☐ Yes ☐ No

4. What do you think affects the mothers' willingness to breastfeed? Choose all that apply.

☐ Attitude ☐ Milk availability ☐ Readiness to breastfeed ☐ Maternity leave duration ☐ Distance from workplace to day care

If other, please specify _____

5. Do you perceive yourself as capable of providing breastfeeding support to mothers?

☐ Yes ☐ No

6. Does your coworker's attitude affect the breastfeeding support provided in the day care center or does it affect you as a breastfeeding support to mothers?

☐ Yes ☐ No

If yes, how? _____

7. Do you receive any training regarding the breastfeeding support in the daycare center?

☐ Yes ☐ No

If yes, who is supporting those trainings?

☐ Government ☐ Day care ☐ Breastfeeding expert ☐ NGO ☐ Don't know

If other, please specify: _____

8. How do you see the director's support regarding breastfeeding in the daycare center? ☐ Very poor ☐ Poor ☐ Average ☐ Good ☐ Excellent

9. Is there any policy to encourage breastfeeding practice in the daycare center? ☐ Yes ☐ No

   If yes, is it a written policy? ☐ Yes ☐ No

   Are you implementing this policy? Please answer this question giving us some details about what parts of the policy are or are not implemented _____

10. Do you agree with the current breastfeeding policy? ☐ Yes ☐ No

11. What is currently being done to support mothers in this daycare? _____

12. Over the last six months, how many infants did you care for who are receiving: Breast milk Only _____ Breast milk & formula _____ Formula only _____

    If your answer is 0 to" breastmilk only" and 0 to "breastmilk and formula" you can

stop answering this questionnaire.

13. If you had infants receiving breast milk over the last 6 months, how do mothers usually provide the breast milk?

☐ Pump at the daycare center and give fresh milk ☐ Provide frozen or recently thawed breast milk ☐ Both ☐ The mother come and feed her children at the center

Are mothers allowed to breastfeed in the day care? ☐ Yes ☐ No

Practice:

Answer all of the questions according to the scale below. Check (X) your choice of answer.

1	2	3	4
Never (never do)	**Seldom (once a month)**	**Frequent (2-3 days per week)**	**Always (everyday)**

A- Handling and storing breast milk at the childcare center

	Never	Seldom	Frequent	Always
1. I make sure every milk storage container is labelled with the infant's name.	☐	☐	☐	☐
2. I check that every expressed breast milk container that we receive has the infant's name and the date of milk expression.	☐	☐	☐	☐
3. I place the expressed breast milk in the refrigerator immediately upon receiving it from the parents.	☐	☐	☐	☐
4. I make sure that the expressed breast milk stored in the lower part of the refrigerator does not exceed 48 hours	☐	☐	☐	☐
5. I store again the remaining unused expressed breast milk.	☐	☐	☐	☐
6. I give the infants the expressed breast milk that was stored earlier first.	☐	☐	☐	☐

B- Giving mother's milk to the infant

	Never	Seldom	Frequent	Always
1. I wash my hands with water and soap before feeding milk to an infant.	☐	☐	☐	☐
2. I thaw expressed breast milk in the chilled section of the refrigerator.	☐	☐	☐	☐
3. I thaw expressed breast milk by putting it in lukewarm water.	☐	☐	☐	☐
4. I thaw expressed breast milk in the microwave.	☐	☐	☐	☐
5. I discard seemingly spoiled expressed breast milk (e.g., smells sour, discolored).	☐	☐	☐	☐
6. I give expressed breast milk at an appropriate temperature.	☐	☐	☐	☐
7. I give expressed breast milk within an hour after thawing.	☐	☐	☐	☐
8. I shake expressed breast milk before giving it to an infant.	☐	☐	☐	☐
9. I discard the remaining expressed breast milk if it is not completely consumed.	☐	☐	☐	☐
10 I give expressed breast milk according to the infant's demand.	☐	☐	☐	☐
11 I give expressed breast milk to the infant using a cup/spoon/syringe.	☐	☐	☐	☐
12 I burp the infant after a breast milk feeding.	☐	☐	☐	☐
13 I give plain water after a breast milk feeding.	☐	☐	☐	☐

Thank you

Appendix B:

Assessment of breastfeeding support, knowledge, attitude and practices in North Lebanon daycare centers- A cross-sectional study.

This survey aims to assess knowledge, practices and support of breastfeeding among child care centers' directors. We appreciate your cooperation to complete the following survey. The estimated time to complete this survey is approximately 10 minutes. Participation is voluntary. Questionnaires are anonymous and confidential. All responses will be compiled together and analyzed as a group. There are no foreseeable risks or direct benefits from participating.

Personal information:

ID:

1. Age _____ Years
2. Gender ☐ Female ☐ Male
3. Marital status ☐ Married ☐ Not married
4. Do you have children ☐ Yes ☐ No (skip to question 6)

   If yes, specify how many _____
5. Were your children breastfed? ☐ Yes ☐ No

   If yes, please specify for how many months on average: _____
6. Highest degree ☐ Baccalaureate ☐ Bachelor ☐ Masters or higher
7. For how many years have you been working in your profession? _____
8. For how many years have you been working in this specific day care center? _____

Support:

1. Do you have knowledge of a national breastfeeding ☐ Yes ☐ No

policy supporting breastfeeding at daycare centers?

2. Do you have any written breastfeeding policy specific to your daycare center? ☐ Yes ☐ No

If yes, do you share these policies with parents? ☐ Yes ☐ No

If yes, **how** do you share it with the parents? ☐ Conversation ☐ Poster ☐ Recommendations ☐ Questions and answers

☐ Other
Please specify: _____

3. Do you have a lactation expert that visits the day care center? ☐ Yes ☐ No

4. Do you train employees to help the mothers breastfeed their child on premise? ☐ Yes ☐ No

5. Do you provide specific trainings for both employees or parents related to breastfeeding? ☐ Yes ☐ No

If yes, what is the training you provide? Who provides the training? _____

_____

Does the government provide such training or do you as daycare center do it? ☐ Provided by government ☐ Provided by daycare

Are there any non-governmental organizations involved in this training? ☐ Yes ☐ No

6. Do you have pamphlets that encourage breastfeeding given out to parents? ☐ Yes ☐ No

7. Do any parents request the presence of assistance for breastfeeding when they want to enroll their child in your daycare center? ☐ Yes ☐ No

   If yes, what is usually the request? _____

8. Is your facility equipped with the following physical resources to help support breastfeeding?

   a. Private room for breastfeeding ☐ Yes ☐ No
   b. Electricity ☐ Yes ☐ No
   c. Fridge ☐ Yes ☐ No
   d. Microwave ☐ Yes ☐ No
   e. Preparation counters ☐ Yes ☐ No
   f. Labeling kits ☐ Yes ☐ No

9. What is the total number of mothers that are breastfeeding currently in your center? _____

10 What is the total number of mothers that have infants **less than 6 months of age** at your center? _____

11. What is the total number of mothers that have children **6 months old-2 years old?** _____

12 . Can you state 3 main barriers to breastfeeding support that are _____
_____
_____

encountered? (according to your experience)

13 . What kind of information and training would be helpful to you in assisting parents, staff or yourself with feeding breastmilk to infants?

14 . What is the most preferred way to receive educational information on infant feeding?
Example: online sources, dietitian, books…

Thank you.

Appendix C:

Interview Guideline:

Objective

To assess knowledge, attitude, practices and support of breastfeeding among child care centers employees.

Participants' characteristics data:

1. How old, are you?
2. What is your highest education attained?
3. What is your current position in this Day care centre?
4. How long you have been involved in childcare? And in this centre?

Day-care centre characteristics data:

5. How long this nursery has been operating?
6. How many babies are in the day care centre? What is the age range of children at the day care?
7. How many babies aged 6 months old or under are in this nursery?
8. How many employees work in this day-care? What is their job description? Are they all full timers? or part timers?

Supporting breastfeeding practices

9. Do you know of any specific policy from the MOPH related to breastfeeding in nurseries? If yes, are you trying to apply it in the day care centre?
10. Do you have any specific breastfeeding policy at your day care centre?

    If yes: What is it? And how do you communicate this policy

a-to parents?

b-to employees or staff

11. What support do you provide for exclusive breastfeeding?
(prompt if the following issues are not raised spontaneously during the interview session);

    - Support for the mothers (hint: do you explain benefits of breastfeeding for mothers and her child…)
    - Support on practice implementation (hint: does the child care display culturally appropriate pictures and posters of breastfeeding and exclude those supplied by formula manufactures?

      Are breastfeeding mothers provided a private and clean place to breastfeed their babies or express milk?

      Does the Center provide refrigerator space for breastfeeding mothers to store their expressed breast milk?

      Does employees undergo special training sessions to increase their knowledge and to carry out breastfeeding promotion and support activities.

      If yes can you please give us more details about what is done

12. In your experience, how do you see the women's behavior and ideas regarding the exclusive Breastfeeding and continuation of Breastfeeding
13. Can you tell me about any training or sources of information you have received on exclusive breastfeeding? (was there any NGO or gov agency involved in improving the BF support in your DCC? Or any lactation consultant comes from time to time to the nursery ang gives any training?
14. Can you provide us info about employees staffing? (long term staffing or short term?) if new employee is employed will she/he undergo the necessary training?
15. In your opinion, what barriers do you feel limit mothers from providing breastmilk to their infants when they enroll in day care? What do you think can be done to support mothers to continue providing breastmilk after their infants enroll in day care? What would be effective ways to improve the practice of exclusive breastfeeding?

Ending

Thank you so much for your time so far.

That completes the questions.

Before we end this session, do you have anything else to add?

Thanks again for your willingness to answer these questions.

Appendix D:

Right answers of caregivers (knowledge part)

Variable	Number	%
Colostrum has a high antibody content.	4	66.7
Breast milk causes constipation in infants.	5	83.3
Breastfeeding reduces the risk of infants getting lung infections.	3	50.0
Breast milk that looks diluted is less nutritious	2	33.3
Breastfeeding causes infants to have low body weights.	6	100.0
The common cold risk can be reduced by breast milk.	2	33.3
Breast milk is not easily contaminated when compared to formula.	2	33.3
Breastfeeding calms the infant.	5	83.3
Mothers who breastfeed are at a higher risk of getting breast cancer.	3	50.0
Breastfeeding infants have daily bowel movements.	2	33.3
Infants will have normal weight gain with optimal breastfeeding.	5	83.3
Breastfeeding increases an infant's intelligence.	2	33.3
Infants sleep well when they are getting sufficient breast milk.	4	66.7
Breastfeeding causes infant to have diarrhea.	4	66.7
Breastfeeding causes maldevelopment of the gums and teeth.	4	66.7
Colostrum is difficult to digest.	3	50.0
Breastfeeding should continue even when the child is sick.	4	66.7
Formula provides better protection from allergies when compared to breast milk.	4	66.7
Infants should be given only breast milk from birth until 6 months of age.	4	66.7
Breastfeeding should be in accordance with the infant's demand.	4	66.7
Infants can be given plain water during the exclusive breastfeeding period.	3	50.0
Infants can be given tea or herbal infusions during the exclusive breastfeeding period	1	16.7
Exclusive breastfeeding means that infants are only given breast milk from birth to 6 months of age.	1	16.7

Breastfeeding should be continued until the infant is 2 years old or older.	3	50.0
The mother has to breastfeed every 3 hours.	2	33.3
The correct position during breastfeeding ensures effective breastfeeding.	3	50.0
Expressed breast milk that has been thawed can be stored again.	2	33.3
The expressed breast milk container needs to be labelled with infant's name, time, and date.	5	83.3
Frozen expressed breast milk can be thawed on the stove.	4	66.7
Breastfeeding should be continued up to 2 years or more in addition to complementary food.	2	33.3
The use of an artificial teat facilitates breastfeeding.	1	16.7
Expressed breast milk can be stored for up to 3 months in the freezer of a 2-door refrigerator.	4	66.7
Providing plain water after each breastfeeding session is encouraged.	3	50.0
Newly expressed breast milk can be mixed together in a container with previously expressed breast milk.	5	83.3
Formula is nutritious because it contains added docosahexaenoic acid (DHA).	1	16.7
Frozen expressed breast milk can be thawed in the microwave.	5	83.3
Expressed breast milk that has been thawed completely should be consumed in an hour.	3	50.0
Formula can be kept longer at room temperature when compared to breast milk.	1	16.7
Frozen expressed breast milk that has been thawed can be stored in the chilled section of the refrigerator for 24 hours.	3	50.0
Expressed breast milk stored in the chilled section of the refrigerator needs to be consumed immediately if the power supply is disconnected.	1	16.7
Frozen expressed breast milk can be thawed in lukewarm water.	4	66.7
The "first in, first out" method refers to expressed breast milk that has been stored earlier being consumed first.	3	50.0
Frozen expressed breast milk that has been thawed can be refrozen again.	6	100.0
Expressed breast milk can last for 4 hours at room temperature.	2	33.3

Caregivers attitudes towards breastfeeding:

Variables	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
I believe mother's milk is important for an infant.	1(16.7)			3(50.0)	2(33.3)
I think infants who drink mother's milk are easier to manage.		1(16.7)		4(66.7)	1(16.7)
I believe that breast milk is economical.		1(16.7)		4(66.7)	1(16.7)
I assume breastfeeding requires expensive equipment.	1(16.7)		2(33.3)	2(33.3)	1(16.7)
I think breastfeeding is something outdated.	1(16.7)		2(33.3)	2(33.3)	1(16.7)
I think expressed breast milk is easier to manage than formula.			2(33.3)	3(50.0)	1(16.7)
I think exclusive breastfeeding is the best option for working mothers.		1(16.7)		5(83.3)	
I think breast milk increases the bond between mothers and infants.		1(16.7)		4(66.7)	1(16.7)
I think breastfeeding is tiring.		2(33.3)		4(66.7)	
I think infants who drink formula choke more easily.			3(50.0)	3(50.0)	
I think taking care of a breastfed infant is more difficult than taking care of those who drink formula.		3(50.0)	2(33.3)	1(16.7)	
I believe breast milk is nutritious.		1(16.7)		3(50.0)	2(33.3)
I think breastfeeding is a waste of time.	3(50.0)	2(33.3)		1(16.7)	
I believe infants who drink breast milk are healthier.			3(50.0)	1(16.7)	2(33.3)
I think breastfeeding is embarrassing.	1(16.7)	2(33.3)	1(16.7)	2(33.3)	
I am proud to see working mothers continue breastfeeding.			2(33.3)	2(33.3)	2(33.3)
I feel that it is easy to handle expressed breast milk.		1(16.7)	2(33.3)	3(50.0)	
I do not like seeing mothers spend time on breastfeeding.	2(33.3)	3(50.0)		1(16.7)	
I am happy that breastfed infants grow well.		1(16.7)		3(50.0)	2(33.3)
I am happy that breastfed infants rarely have fevers.	1(16.7)		1(16.7)	3(50.0)	1(16.7)
I am proud to see mothers who breastfeed.		1(16.7)		4(66.7)	1(16.7)
I am embarrassed to see mothers breastfeeding in this childcare center.	1(16.7)	2(33.3)		1(16.7)	2(33.3)
I enjoy taking care of breastfed infants.			1(16.7)	4(66.7)	1(16.7)

I will support the practice of breastfeeding in childcare centers.		1(16.7)	1(16.7)	3(50.0)	1(16.7)
I will encourage mothers to breastfeed in this childcare center.			1(16.7)	4(66.7)	1(16.7)
I would like to increase my knowledge of breastfeeding.		1(16.7)		4(66.7)	1(16.7)
I will handle expressed breast milk with the utmost care.	1(16.7)		2(33.3)	2(33.3)	1(16.7)
I would like to participate in the breastfeeding training program.			1(16.7)	4(66.7)	1(16.7)
I will receive the expressed breast milk to be used in this childcare center.		1(16.7)	2(33.3)	3(50.0)	
I will encourage mothers to give formula as well as breast milk if the infant is 6 months old.			1(16.7)	4(66.7)	1(16.7)
I will make sure the infant is burped sufficiently after a milk feeding.	1(16.7)		2(33.3)	2(33.3)	1(16.7)
I will correct any inaccurate information regarding breastfeeding.		1(16.7)	1(16.7)	3(50.0)	1(16.7)
I will disseminate information on the benefits of breastfeeding.			1(16.7)	4(66.7)	1(16.7)

Caregivers practices (handling and feeding baby breastmilk):

Variable	Never	Seldom	Frequent	Always
I make sure every milk storage container is labelled with the infant's name.			1(20%)	4(80%)
I check that every expressed breast milk container that we receive has the infant's name and the date of milk expression.		1(20%)		4(80%)
I place the expressed breast milk in the refrigerator immediately upon receiving it from the parents.			2(40%)	3(60%)
I make sure that the expressed breast milk stored in the lower part of the refrigerator does not exceed 48 hours		1(20%)		4(80%)
I store again the remaining unused expressed breast milk.	2(40%)	1(20%)		2(40%)
I give the infants the expressed breast milk that was stored earlier first.			2(40%)	3(60%)
I wash my hands with water and soap before feeding milk to an infant.		1(20%)		4(80%)
I thaw expressed breast milk in the chilled section of the refrigerator.	2(40%)			3(60%)
I thaw expressed breast milk by putting it in lukewarm water.	1(20%)	1(20%)	1(20%)	2(40%)
I thaw expressed breast milk in the microwave.	5(100%)			
I discard seemingly spoiled expressed breast milk (e.g., smells sour, discolored).	1(20%)		1(20%)	3(60%)
I give expressed breast milk at an appropriate temperature.	1(20%)		1(20%)	3(60%)
I give expressed breast milk within an hour after thawing.	2(40%)		1(20%)	2(40%)
I shake expressed breast milk before giving it to an infant.	2(40%)		1(20%)	2(40%)
I discard the remaining expressed breast milk if it is not completely consumed.	1(20%)		1(20%)	3(60%)
I give expressed breast milk according to the infant's demand.	1(20%)		1(20%)	3(60%)
I give expressed breast milk to the infant using a cup/spoon/syringe.	2(40%)	1(20%)	1(20%)	1(20%)
I burp the infant after a breast milk feeding.	1(20%)			4(80%)
I give plain water after a breast milk feeding.	3(60%)		1(20%)	1(20%)

Appendix E:

Individual characteristics of daycare centres directors:

ID	Region	Gender	Age	Marital status	Children	Degree owned	Years of experience in current center	Breastfeeding experience	Duration of breastfeeding	Training related to breastfeeding
1	Akkar	Male	38	Married	Yes	Bachelor	6	Yes (wife)	2 months	No
2	Akkar	Male	46	Married	Yes	Phd or equivalent	10	No		No
3	Zgharta	Female	35	Married	Yes	Masters	8	Yes	>8 months	Yes
4	Zgharta	Female		Married	Yes	Bachelor	7	Yes	6 months	No
5	Zgharta	Female	40	Married	Yes	Masters	5	No		No
6	Tripoli	Female	58	Married	Yes	Bachelor	5	Yes	~8 months	No
7	Zghatra	Female	34	Married	Yes	Bachelor	4	Yes	4 months	No
8	Tripoli	Female	33	Married	Yes	Bachelor	8	Yes	1.6 years	No
9	Tripoli	Female	35	Married	Yes	Bachelor	5	Yes	1 year	No
10	Akkar	Female	44	Married	Yes	Bachelor	16	No		Yes
11	Akkar	Female	53	Married	Yes	Bachelor	13	Yes	2 years	Yes
12	Tripoli	Female	45	Married	Yes	Bachelor	12	Yes	1.4 years	No
13	Tripoli	Female	43	Married	Yes	Bachelor	16	Yes	1.4 years	No
14	Zgharta	Female	46	Married	Yes	Bachelor	15	Yes	2.5 years	No
15	Akkar	Female	38	Married	Yes	Less than baccalaureate	20	Yes	2.3 years	No

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